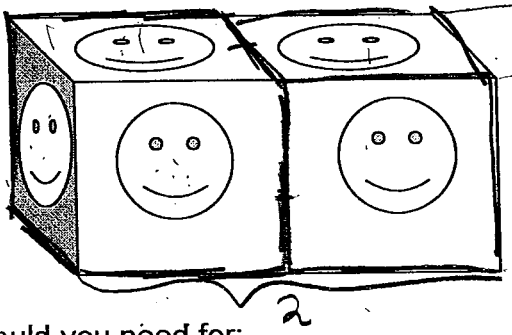
## (1b) Cube Sticker Problem

A company makes coloured rods by joining cubes in a row and using a sticker machine to put "smiley" stickers on the rods. The machine places exactly 1 sticker on each exposed face of each cube. Every exposed face of each cube has to have a sticker. This rod of length 2 (2 cubes) would need 10 stickers.

5 Stickers on 1 Rod =




(Y = Rod)

= 10 stickers on 2 Rods

Y = 4X + 2

How many stickers would you need for:

A rod of 1 cube — Rod 1: Y = 4(1) + 2 = 6

A rod of 2 cubes — Rod 2: Y = 4(2) + 2 = 10

A rod of 3 cubes — Rod 3: Y = 4(3) + 2 = 14

A rod of 4 cubes — Rod 4: Y = 4(4) + 2 = 18

A rod of 10 cubes — Rod 10: Y = 4(10) + 2 = 42

| Rod # | Sticker # |
|---|---|
| 1 | 6 |
| 2 | 10 |
| 3 | 14 |
| 4 | 18 |
| 10 | 42 |

How many stickers would you need for a rod of 20 cubes?

Y = mx + b, Y = 4(20) + 2, Y = 82

How many stickers would you need for a rod of 56 cubes?

What's the rule?

Y = mx + b

Y = 4(56) + 2

Y = 226

The Rule is for every #s of Rods you multiply that by 4 and add 2.

The Equation For this is Y = mx + b.

Ex. Y

Y =

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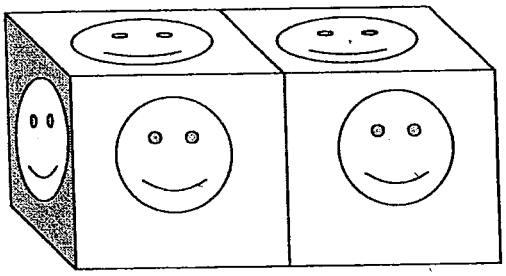

How many stickers would you need for:

| | Stickers | First differences |
|---|---|---|
| A rod of 1 cube | 6 | |
| | | 4 |
| A rod of 2 cubes | 10 | |
| | | 4 |
| A rod of 3 cubes | 14 | |
| | | 4 |
| A rod of 4 cubes | 18 | |
| | | 4 |
| A rod of 10 cubes | 22 | |

equation = $4x+2$

How many stickers would you need for a rod of 20 cubes?

$4x+2$

$4(20)+2 = 82$

How many stickers would you need for a rod of 56 cubes?

What's the rule?

$4x+2 = 56$

$4x+2-2 = 56-2$

$\frac{4x}{4} = \frac{54}{4}$

$x = 13.5$

∴ You would need about 14 stickers.

The rule is $4x+2$.

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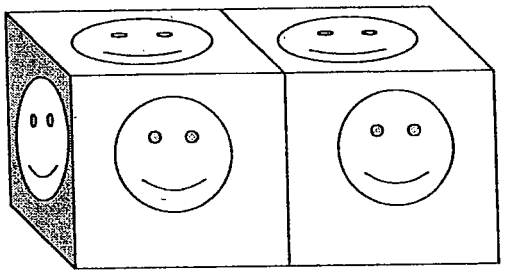

How many stickers would you need for:

A rod of 1 cube = 6

A rod of 2 cubes = 10

A rod of 3 cubes = 14

A rod of 4 cubes = 16

A rod of 10 cubes = 42

How many stickers would you need for a rod of 20 cubes?

82

How many stickers would you need for a rod of 56 cubes?

What's the rule?

you times the # of cubes by

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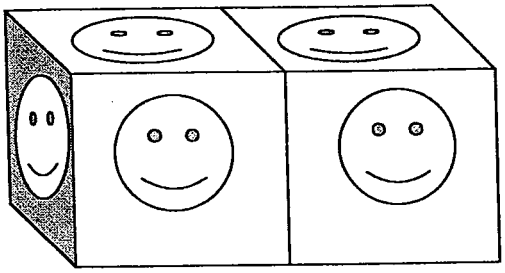

How many stickers would you need for:

A rod of 1 cube = 6

A rod of 2 cubes = 10

A rod of 3 cubes = 14

A rod of 4 cubes = 18

A rod of 10 cubes = 42

| # of cubes | # of stickers |
|---|---|
| 1 | 6 |
| 2 | 10 |
| 3 | 14 |
| 4 | 18 |
| 5 | 22 |
| 6 | 26 |
| 7 | 30 |
| 8 | 34 |
| 9 | 38 |
| 10 | 42 |

How many stickers would you need for a rod of 20 cubes?

82

How many stickers would you need for a rod of 56 cubes?

What's the rule?

Add 4 each time

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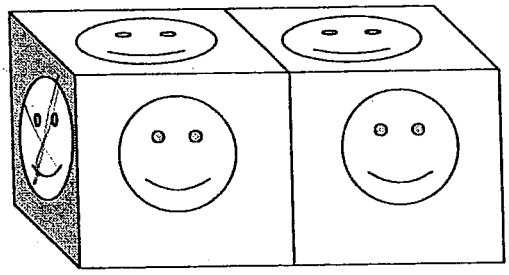

How many stickers would you need for:

A rod of 1 cube

A rod of 2 cubes

A rod of 3 cubes

A rod of 4 cubes

A rod of 10 cubes

| # of cubes | # of stickers |
|---|---|
| 0 | 0 |
| 1 | 6 |
| 2 | 10 |
| 3 | 14 |
| 4 | 18 |
| 5 | 22 |
| 6 | 26 |
| 7 | 30 |
| 8 | 34 |
| 9 | 38 |
| 10 | 42 |

Equation =
$S = 4x + 2$
↓ ↓ ↓
# of stickers
4 stickers / # of cubes
+2 end stickers

How many stickers would you need for a rod of 20 cubes?

$S = 4x + 2 = 80 + 2$ ∴ you would need 82 stickers
$= 4(20) + 2 = 82$

How many stickers would you need for a rod of 56 cubes?

$S = 4x + 2 = 224 + 2$ ∴ you would need 226 stickers
$= 4(56) + 2 = 226$

What's the rule?

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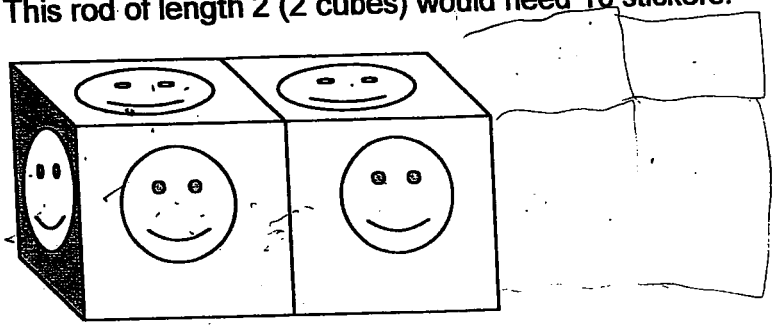

How many stickers would you need for:

A rod of 1 cube 6

A rod of 2 cubes 10

A rod of 3 cubes 14

A rod of 4 cubes 18

A rod of 10 cubes 42.

How many stickers would you need for a rod of 20 cubes?

84.

How many stickers would you need for a rod of 56 cubes?

What's the rule?

| # of cubes | # of stickers |
|---|---|
| 1 | 6 |
| 2 | 10 |
| 3 | 14. |
| 4 | 18 |
| 5 | 22 |
| 6 | 26 |
| 7 | 30 |
| 8 | 34 |
| 9 | 38 |
| 10 | 42. |
| 11 | 46 |
| 12 | 50 |
| 13 | 54 |
| 14 | 58 |
| 15 | 62 |
| 16 | 66 |
| 17 | 70 |
| 18 | 74 |
| 19 | 78 |
| 20 | 82. |